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Investigations of Wines from Rare Grape Varieties.

Grown by the Natoma Water and Mining Company, Folsom, 1884.

It should be understood that almost all of the grapes furnished from the vineyard of the above company, for experimental wine-making at the University Viticultural Laboratory, where the product of two-year-old grafts on old Mission stocks, all trained long on stakes with a view to the production of wood as well as fruit. The plantation is in rather low ground, and the product may from this cause, as well from the youth of the vines, be accounted as not representing the best result to be expected from each variety.

The grapes were usually (after stemming) crushed as as soon as received, *i. e.* in from two to three, rarely four days after shipment from the vineyard. The quantities being small, it was necessary to keep the temperature of the fermenting room higher than would have been admissable for large packages; usually between 67 and 70 F. Under these circumstances the fermentations were almost always completed within from seven to nine days after crushing, as is the case on the large scale. The red wines were fermented in tubs of appropriate sizes, with floating, unperforated covers leaving about an inch, or less, of space all around for the escape of gas, without exposing the pomace to acetification; and twice each day the whole was thoroughly stirred. The pomace was in all cases pressed and the press must or wine united with the first run; and here again, the wines do not represent the best possible result, as is well understood. The presses used were the "Keystone" and the "Americus", and as the same persons always did the pressing, it is presumable that the percentages of pomace given below represent actual differences in the grapes themselves. The must was in most cases analyzed immediately after pressing; but sometimes the pressure of work prevented this and it was omitted.

The after-fermentation of all the red wines at least took place in kegs of proper size, of from one to ten gallons, in a room kept at all times at from 58° to 60° F. It was afterward found that the thinness of the staves of these kegs not only gave rise to rapid evaporation, but also to excessive access of air through their pores, so soon as the carbonic acid gas had ceased to be given off. They were filled up every week or oftener, as the ullage required; with the same wine when this was available, and if not with clean fragments of Folsom granite, in order to avoid the addition of anything foreign to the grape. So soon as the injurious effects of the thin staves were noted, the kegs were covered with a thick coat of paraffine. Since then the ullage has been trifling, and at least not greater than usual in large packages; and no farther bad effects have appeared. All the wines have been racked three times at this date; some oftener, as their condition seemed to require. Of nearly all, samples have also been kept in bottles and vials, for comparison of the effects of the package on the development of the wines; and of many, samples were exposed in bottles only partially fully, in order to test their keeping qualities under such circumstances. Nearly all have been tasted at three successive periods by Mr. Pohndorff, as well as by myself. In the notes given below the dates as well as the tasters are mentioned, and they include, of course, such portions of the report of the wine committee of the late Viticultural Convention as refer to the same wines. In order to render the results more generally useful in guiding the choice for planting, I place at the beginning of each statement an abstract of the main points of interest in connection with the culture of the several grapes, from the (French) work on the vines of France, by Mas & Pulliat; also the notes furnished by the Natoma Company concerning the habit of the vine, as observed at Folsom, with such remarks as were suggested by the comparison with the figures and descriptions of the French types.

Mondeuse.

Cultivated chiefly in southeastern France, in the more northern departments bordering on the Rhone, and in Savoy, where it forms a large proportion of the vineyards and yields excellent red wines, provided it is planted on upland slopes with good exposure, as it needs considerable heat to acquire its best qualities; in valley lands, or on unfavorable slopes, it rapidly loses quality. The wines are heavy-bodied and deeply colored, but somewhat rough at first and rather slow to mature. It is a vigorous and very productive vine, even with short pruning, and remarkably long-lived. From the Natoma vineyard it is reported as being not quite so productive as the Sirah, but more vigorous—the bunches from that locality were, on the whole, remarkably long and rather more loose than in the figure, even sparse; berries of medium size, with a thin but firm skin, much less tender than that of the Sirah, and deeply colored.

Two lots were received, one on September 10, '84, with 20.2 per cent sugar, and a second one on October 1, '84, showing 22.6 per cent of sugar. Both were crushed for their own wine on the days of receipt and were in good condition throughout. Fermentation of the first lot (No. 10) began on the night of September 11th, at 68.9° F, and reached its maximum temperature of 82.4° F. on the night from Sept. 13th to 14th, then fell to the temperature of the cellar (70° F.) on Sept. 17th, the seventh day from the crushing, when the murk was drawn off, the yield being 12 gallons from 148.06 lbs., or at the rate of 167.2 gallons per ton; pomace, 13.4 p. c. Fermentation of the second lot (No. 10 A) began on the morning of Oct. 2d, at 66° F.,

and reached its maximum temperature of 71.6° F. on Oct. 4th, then fell to the temperature of the cellar on Oct. 8th; when the murk was drawn off eight days from the crushing the yield from the 56.3 lbs. employed not being measured in this case. Pomace 12.6 per cent.

The fermentation was regular and satisfactory throughout, and the young wine cleared very rapidly, racked from lees November 26.

Record of tasting, November 11th (Pohndorff). Sample No. 10, crushed September 10th. Excellent color and taste.

Same date, No. 10A, of October 1st, better than the preceding, and of very marked quality.

First week of December; Convention committee report,—

Equal usefulness and quality (as in the Petite Sirah) is shown in samples No. 73 of Mrs. C. A. Wetmore and U. No. 10A of Mondeuse, or Grosse Sirah. The color, as grand, ruby-tinted and of great intensity in this wine, as in the small Sirah, and as stringency and general taste and flavor of equal beauty, will render the two varieties some of the future favorite plants in California vineyards. U. No. 35, a blend of two-fifths Mondeuse with three-fourths Zinfandel, is an eloquent test of a happy improvement and good use of Zinfandel for a delicious superior wine. It is fortunate that, according to experience at the Natoma Vineyard, the Petite Sirah shows itself a very fair bearer and Mondeuse to be a vine of good vigor; both ripen early.

February 9th, 1885. (Pohndorff.) Sample in 10-gal. keg: Color deep ruby, taste clean, mild, light, and showing good development, but taste slightly impaired by the thinness of the staves, and consequent excessive access of air. Bouquet expressive, but likewise influenced by the circumstance just referred to. Had the care of keeping an even temperature in the cellar been relaxed, this wine would probably have gone wrong.

Sample in full bottle filtered from lees Nov. 26th: Kept and developed well; taste frank, color unimpaired.

Sample in bottle three-fourths full, closely corked, of same date as above: Perfectly sound, color kept remarkably well. Taste astringent; oxidation produced only a slight bitterness.

Small remnant of same in eight ounce vial, with cork loosely put in since November 26th, kept its color perfectly, taste clean and only slightly affected by the air that half filled the vial.

The Mondeuse proves therefore to be a sturdy keeper, a circumstance of great value for the hot regions of the State.

April 1, 1885. (E. W. H.)—The condition of the earlier sample, No. 10, is bright; its color is sensibly less intense than that of No. 10A, which is clear and of an intense purplish-red color. The character of both is strongly developed, showing a peculiar, fruity bouquet, most agreeable in the later sample. The body is heavy; the vinous flavor is well developed; both are decidedly roughish to the taste at this time, both acid and astringency being quite prominent: the wine dilutes remarkably well. It will evidently take some time to tone down the asperity. In all respects, therefore, the samples agree with the French types.

Sirah—Petite Sirah, Syrac, &c.

The Sirah, like the Mondeuse, is most largely cultivated in Southeastern France, from the region of Lyon southward beyond Valence; but it is also grown more or less on the Cote d'Or and in the Bordelais. It forms, in blends with white grapes like the Marsanne, Roussanne, Viognier, etc., a large ingredient of the high-grade red wines of Hermitage, Cote Rotie, and other localities. It is a vigorous vine, of good productiveness; is mostly pruned long or half long, but is sometimes nearly as productive as the Mondeuse, even when short-pruned.

From Folsom, the Sirah is reported to be (long-pruned) a very fair bearer, and medium ripening, a little later than the Mondeuse. This is the reverse of what is stated in this regard from France, where the Mondeuse ripens between the second and third epoch, while the Sirah is of the second. The character of the Sirah from Folsom was very exactly that described and figured by French authors, only the bunches were more closely packed. They arrived in good condition, although the skin is more tender than that of the Mondeuse; and on the whole, the Sirah would not bear transportation or keep as well as the former. The berries are very juicy and deeply colored.

Two lots were received, one, No. 12, on Sept. 13th, showing 21.6 sugar by spindle ; the other, No. 12 A, Sept. 30th, with (according to the alcoholic contents of the wine) about 23.0 of sugar. The first lot was in good condition; the second considerably damaged by handling and in part by mould, but it was carefully picked over before crushing.

Of the first lot 104.7 pounds were crushed on Sept. 13th, and began fermentation on the morning of the 15th at a temperature of 68.9° F. It reached its maximum temperature of 77.8 F. on Sept. 16th, remaining at that temperature for one day, while that of the cellar was 70°, then gradually fell to the cellar temperature of 69° F., on Sept. 20th, when the murk was drawn off, seven days from the crushing, the yield being 8.9 gallons from the above amount, or at the rate of 170.1 gallons per ton; pomace, 11.3 per cent. The young wine was racked from the lees on Nov. 27th.

The fermentation of the second lot of 86.9 pounds, crushed on Sept. 30th, began on the evening of Oct. 2d at a temperature of 66.2°, and reached its maximum of 76° on Oct. 4th, the temperature of the cellar being at the time 67° F. Next morning the temperature had fallen to 71.6°, and then gradually fell to the cellar temperature of 68.9° on Oct. 8th, when the murk was drawn off, nine days from th crushing, the yield being 7 gallons from the above amount, or at the rate of only 161.1 gallons per ton. This wine was racked from the lees on Nov. 11th. The color of both samples was very intense.

Record of tasting. Nov. 11th, 1884. (*Pohndorff.*) No. 12, good color and clean taste. No. 12A, deeper color than No. 12, clean taste.

Vit. convention committee report:

Petite Sirah U. 12, and 202, from Oakville, confirmed the conviction gained from previous samples from Mr. Drummond of Glen Ellen, of a very useful wine of splendid color, fine fragrance and frank, clean vinous taste. The latter gentleman presented his 1884 in a blend with one-fifth of Marsanne, the white grape of Hermitage; and this blend was a very good one.

U. No. 16, one-fifth Sirah to four-fifths of Malbec, although having apparently too small an addition of the former to modify the nature and taste of the latter, seems to be a homogeneous mixture, while U. blend No. 36, not noted in the catalogue, consisting of one-third of Petite Sirah and two-thirds of Cabernet franc, is a successful combination. So is blend No. 90, which in the catalogue is incorrectly noted, and consists of half Petite Sirah and half Cinsaut; the result being a wine of perfumed flavor. The use of the same in equal proportions, making up 60 parts of Sirah, to 40 parts of Zinfandel is beautifully merged in U. No. 94.

It will be noted that the pure Sirah sample, No. 10, mentioned above, is the earlier one.

February 9, 1885. (Pohndorff.)—Sample in five-gallon keg (No. 12) is of full flavor, good, deep color, and rich, expressive taste, mild and agreeable.

Sample in one-gallon demijohn: deep color, well kept, and development corresponding to the clean taste and characteristic expression.

Sample in bottle: deep color, bright, clean taste, characteristic expression, clean and expressive; advanced development, owing to three rackings received since it finished its fermentation.

Sample in small keg, from the grapes arrived September 30th: deep color; although still sound, the wine has suffered and its taste is affected by too easy access of air and evaporation through the thin staves.

April 1, 1885. (E. W. H.)—The condition of both samples, 12 and 12A, is clear. The color of the first is sensibly less deep than that of the latter sample, which is of an intense purple tint; its body, also, is heavier to the taste than that of No. 12. The bouquet has developed decidedly since last tasting, and has a suggestion of that of dried prunes. The acidity of the sample No. 10 (the earlier) is quite decided to the taste though pleasant; that of 12 a much less so, although this is the sample noted as having suffered from the thinness of the staves. Neither dilutes well; the bouquet is lost at once, though in No. 10 the acid and astringency still hold out, while 10A becomes flat at once.

MUST.

No.	Variety.	Date of receiving Grapes	Solid Contents by Spindle	Acid as Tartaric	Acid of Murk.
10	Mondeuse.....	Sept. 10	20.160	.510	.413
10 A	Mondeuse.....	Oct. 1	22.600	....	.533
12	Sirah	Sept. 13	21.600	.663	.450
12 A	Sirah	Sept. 30	.....	....	.375
30	Cinsaut*	Sept. 25	23.940	.528	.381

WINE.

No.	Variety.	Body.....	Alcohol. By Weight	Alcohol. By Volume	Tannin	Acid as Tartaric
10	Mondeuse.....	2.635	9.56	11.89	.173	.498
10 A	Mondeuse.....	2.842	9.92	12.27	.141	.405
12	Sirah	2.650	10.07	12.54	.092	.401
12 A	Sirah	2.790	10.81	13.27	.108	.393
30	Cinsaut*	2.600	10.44	12.90	.070	.490

It will be noticed that the Mondeuse is altogether the heaviest bearer of tannin, ranking in this respect with the Malbeck, Tannat and Charbono; the earlier sample, singularly enough, showing the higher figure. The Sirah averages only two-thirds as much, while the C insaut runs in this respect with the Zinfandels.

Considering the cool season of 1884, the alcoholic contents run high in all three, as might be expected of grapes of their climatic location in France. The body, though heavy, is not as high as might have been expected; but as it distinctly increases with maturity it would probably reach three per cent in our ordinary seasons. Similarly the acid, which reaches a respectable figure in all, would ordinarily be somewhat lower, probably, than in 1884. The Mondeuse comes nearest to a true claret type; but it is probable that for commercial purposes the wines from these grapes would generally be blended with others, as is done in France; and for such purpose they will certainly be of the highest value in modifying and imparting quality to our more common types.

Berkeley, Cal., April 2, 1885.

E. W. HILGARD.

* Fuller details regarding the Cinsaut will be given in a future bulletin.